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tion is, of course, essentially like the behavior of alien plants in America, but just the contrary of what we have always believed of New Zealand since the early statements of Hooker. Only one alien plant, the blackberry (*Rubus fruticosus*), has become dangerous to the sheep industry. For practically every one of these aliens the author can record the year and place of its first appearance and the details of its further history. For most of them he knows the exact means by which they reached the station, and for the alien animals also the migration route followed.

All these facts are presented readably, without attempts at theorization, and the whole book is a mine of ecological information.

H. A. GLEASON

NEW YORK BOTANICAL GARDEN

STREAM POLLUTION[1]

This paper is a valuable contribution to the literature of stream pollution. The subject is treated in general and the results will be found applicable to any body of water. The subject matter is treated under such headings as Polluting Materials, Fish Requirements, Zone of Recent Pollution, Septic Zone, Zone of Recovery, Clean Water Forms, Tolerant Forms. Figures are given of the various types of animal and plant life that is characteristic of different degrees of pollution. There is a good but not exhaustive list of references.

The reviewer takes exception to some of the molluscan types cited (plate IV). Goniobasis and Campeloma are not, as a rule, tolerant forms, although they may be found in slightly polluted waters, as may many other types of animals. The little clam Pisidium is usually an inhabitant of clean water and is by no means tolerant. The Pulmoniferous water snails are very tolerant because they take free air. We believe that the fresh-water mussels are good indicators of degrees of pollution, and when they cease to be present in a stream normally fitted for them the pollution may be deemed to be bad. Bottom-inhabiting animals normally inhabiting clean water are good indicators, because they can not get away and must become tolerant or perish. Recent studies in an Illinois stream, covering a distance of nearly 50 miles, in which the sewage of two cities is emptied, indicated clearly that both naiads and crawfish were notably affected by these conditions, the naiads being the less tolerant.

In another place[2] the reviewer presented a study of the Genesee River, at Rochester, N. Y., a heavily polluted stream, showing that the water-breathing snails were the first to give out, not being tolerant, and the air breathers were quite tolerant, in fact remaining until the water was the consistency of dish water before being driven out.

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[1] Suter, Russel and Emmeline Moore, "Stream Pollution Studies." State of New York, Conservation Commission, 1922, pp. 1–34, many figures.

[2] American Naturalist, LIV, pp. 152–161, 1920.

On page 7 of the paper here reviewed the statement is made that " Snails, black fly larvae, water boatmen, and similar forms have a wide range and therefore are not good guides to water condition, except to the scientist who can distinguish between the different species of these animals." Certainly, this is true, and the statement indicates that such studies should not be carried on without the aid of some of these trained scientists who are usually willing to aid in the identification of such material. It is highly important that we should know just which species are tolerant and which are not, for one species of a genus may be highly tolerant and another not the least so. There is no department of public work in which careful and exact studies need to be made more than in the study of stream pollution and the effect on different kinds of animal life.

The paper by Suter and Moore is in the right direction and we hope they will carry on the work in different streams to ascertain the exact state of affairs under different conditions.

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